

# SEQUENCE LISTING

<110> McGonigle, Brian

<120> METHOD OF DECREASING LIQUIRITIGENIN-DERIVED ISOFLAVONES RELATIVE TO TOTAL ISOFLAVONES IN PLANTS AND PLANTS PRODUCING REDUCED RATIO OF LIQUIRITIGENIN-DERIVED ISOFLAVONES RELATIVE TO TOTAL ISOFLAVONES

<130> BB1535 US NA

<140>

<141>

<150> US 60/433,433

<151> 2002-12-13

<160> 8

<170> Microsoft Office 97

<210> 1

<211> 7701

<212> DNA

<213> Artificial Sequence

<220>

<223> Plasmid pKS151

<220>

<221> misc\_feature

<222> (6516)..(6516)

<223> n = A, C, G, or T

<400> 1

cgcgcccgat	catccgggata	tagttcctcc	tttcagcaaa	aaacccctca	agaccggttt	60
agaggcccca	aggggttatg	ctagttattg	ctcagcggtg	gcagcagcca	actcagcttc	120
ctttcgggct	ttgttagcag	ccggatcgat	ccaagctgta	cctcactatt	cctttgccct	180
cggacgagtg	ctggggcgtc	ggtttccact	atcggcgagt	acttctacac	agccatcggt	240
ccagacggcc	gcgcttctgc	gggcgatttg	tgtacgcccg	acagtcccgg	ctccggatcg	300
gacgattgcg	tcgcatcgac	cctgcgcccc	agctgcatca	tcgaaattgc	cgtcaaccaa	360
gctctgatag	agttgggtcaa	gaccaatgcg	gagcatatac	gcccggagcc	gcggcgatcc	420
tgcaagctcc	ggatgcctcc	gctcgaagta	gcgcgtctgc	tgctccatac	aagccaacca	480
cggcctccag	agaagatgt	tggcgacctc	gtattgggaa	tccccgaaca	tcgcctcgct	540
ccagtcaatg	accgctgtta	tgcggccatt	gtccgtcagg	acattggttg	agccgaaatc	600
cgcgtgcacg	aggtgccgga	cttcggggca	gtcctcggcc	caaagcatca	gctcatcgag	660
agcctgcgcg	acggacgcac	tgacgggtgc	gtccatcaca	gtttgccagt	gatacacatg	720
gggatcagca	atcgcgcata	tgaaatcacg	ccatgtagtg	tattgaccga	ttccttgccg	780
tccgaatggg	ccgaacccgc	tcgtctggct	aagatcggcc	gcagcgatcg	catccatagc	840
ctccgcgacc	ggctgcagaa	cagcgggcag	ttcggtttca	ggcaggtctt	gcaacgtgac	900
accctgtgca	cggcgggaga	tgcaataggt	caggctctcg	ctgaattccc	caatgtcaag	960
cacttccgga	atcgggagcg	cggccgatgc	aaagtgccga	taaacataac	gatctttgta	1020
gaaaccatcg	gcgcagctat	ttaccgcgag	gacatatcca	cgccttccta	catcgaagct	1080
gaaagcacga	gattcttcgc	cctccgagag	ctgcatacag	tcggagacgc	tgctcgaactt	1140
ttcgatcaga	aacttctcga	cagacgtcgc	ggtgagttca	ggcttttcca	tgggtatatc	1200
tccttcttaa	agttaaacaa	aattatctct	agagggaaac	cgttgtggtc	tcctatatgt	1260
gagtcgtatt	aatttcgcgg	gatcgagatc	gatccaattc	caatcccaca	aaaatctgag	1320
cttaacagca	cagttgctcc	tctcagagca	gaatcgggta	ttcaacaccc	tcatatcaac	1380
tactacgttg	tgtataacgg	tccacatgcc	ggtatatacg	atgactgggg	ttgtacaaag	1440
gcggcaacaa	acggcggttc	cggagttgca	cacaagaaat	ttgccactat	tacagaggca	1500

agagcagcag	ctgacgcgta	cacaacaagt	cagcaaacag	acaggttgaa	cttcatcccc	1560
aaaggagaag	ctcaactcaa	gcccagagac	tttgctaagg	ccctaacaag	cccacccaaag	1620
caaaaagccc	actggctcac	gctaggaacc	aaaaggccca	gcagtgatcc	agccccaaaa	1680
gagatctcct	ttgccccgga	gattacaatg	gacgatttcc	tctatcttta	cgatctagga	1740
aggaagttcg	aaggtgaagg	tgacgacact	atgttcacca	ctgataatga	gaaggttagc	1800
ctcttcaatt	tcagaaagaa	tgctgaccca	cagatggtta	gagaggccta	cgagcaggt	1860
ctcatcaaga	cgatctaccc	gagtaacaat	ctccaggaga	tcaaatacct	tcccaagaag	1920
gttaaagatg	cagtcaaaaag	attcaggact	aattgcatca	agaacacaga	gaaagacata	1980
tttctcaaga	tcagaagtac	tattccagta	tggacgattc	aaggcttgct	tcataaacca	2040
aggcaagtaa	tagagattgg	agtctctaaa	aaggtagttc	ctactgaatc	taaggccatg	2100
catggagtct	aagattcaaa	tcgaggatct	aacagaactc	gccgtgaaga	ctggcgaaca	2160
gttcatacac	agtcttttac	gactcaatga	caagaagaaa	atcttcgtca	acatggtgga	2220
gcacgacact	ctgggtctact	ccaaaaatgt	caaagataca	gtctcagaag	accaaagggc	2280
tattgagact	tttcaacaaa	ggataatttc	gggaaacctc	ctcggattcc	attgcccagc	2340
tatctgtcac	ttcatcgaaa	ggacagtaga	aaaggaaggt	ggctcctaca	aatgccatca	2400
ttgcgataaa	ggaaaggcta	tcattcaaga	tgcctctgcc	gacagtgggc	ccaaagatgg	2460
acccccaccc	acgaggagca	tcgtggaaaa	agaagacgtt	ccaaccacgt	cttcaaagca	2520
agtggattga	tgtgacatct	ccactgacgt	aagggatgac	gcacaatccc	actatccttc	2580
gcaagacctt	tcctctatat	aaggaagttc	atttcattttg	gagaggacac	gctcgagctc	2640
atttctctat	tacttcagcc	ataacaaaag	aactcttttc	tcttcttatt	aaaccatgaa	2700
aaagcctgaa	ctcaccgcga	cgtctgtcga	gaagttctcg	atcgaaaagt	tcgacagcgt	2760
ctccgacctg	atgcagctct	cggaggcgga	agaatctcgt	gctttcagct	tcgatgtagg	2820
agggcggtga	tatgtcctgc	gggtaaatag	ctgcgcgat	ggtttctaca	aagatcgtta	2880
tgtttatcgg	cactttgcat	cggccgcgct	cccgatcccg	gaagtgcctg	acattgggga	2940
attcagcgag	agcctgacct	attgcatctc	ccgccgtgca	caggggtgca	cgttgcaaga	3000
cctgcctgaa	accgaactgc	ccgctgttct	gcagccggtc	gcggaggcca	tggatgcat	3060
cgctgcggcc	gatcttagcc	agacgagcgg	gttcggccca	ttcggaccgc	aaggaatcgg	3120
tcaatacact	acatggcgtg	atttcatatg	cgcgatctgt	gatccccatg	tgtatcactg	3180
gcaaactgtg	atggacgaca	ccgtcagtcg	gtccgtcgcg	caggctctcg	atgagctgat	3240
gctttggggc	gaggactgcc	ccgaagtccg	gcacctcgtg	cacgcggatt	tcggctccaa	3300
caatgtcctg	acggacaatg	gccgcataac	agcggtcatt	gactggagcg	aggcgatggt	3360
cggggattcc	caatacgagg	tcgccaacat	cttcttctgg	aggccgtggg	tggcttgat	3420
ggagcagcag	acgcgctact	tcgagcggag	gcacccggag	cttgacagga	cgccgcggct	3480
ccgggcgtat	atgctccgca	ttggtccttg	ccaactctat	cagagcttgg	ttgacggcaa	3540
tttcgatgat	gcagcttggg	cgcagggtcg	atgcgacgca	atcgtccgat	ccggagccgg	3600
gactgtcggg	cgtacacaaa	tcgcccgcag	aagcgcggcc	gtctggaccg	atggctgtgt	3660
agaagtactc	gccgatagtg	gaaaccgacg	ccccagcact	cgtccgaggg	caaaggaata	3720
gtgaggtacc	taaagaagga	gtgcgtcgaa	gcagatcgtt	caaacatttg	gcaataaagt	3780
ttcttaagat	tgaatcctgt	tgccggtcct	gcgatgatta	tcatataatt	tctgttgaat	3840
tacgttaagc	atgtaataat	taacatgtaa	tgcatgacgt	tatttatgag	atgggttttt	3900
atgattagag	tcccgcaatt	atacatttaa	tacgcgatag	aaaacaaaat	atagcgcgca	3960
aactaggata	aattatcgcg	cgcggtgtca	tctatgttac	tagatcgatg	tcgaatctga	4020
tcaacctgca	ttaatgaatc	ggccaacgcg	cggggagagg	cggtttgctg	attgggcgct	4080
cttcgcgttc	ctcgctcact	gactcgctgc	gctcggctcg	tcggctgcgg	cgagcgggat	4140
cagctcactc	aaaggcggtg	atacggttat	ccacagaatc	aggggataac	gcaggaaaaga	4200
acatgtgagc	aaaaggccag	caaaaggcca	ggaaccgtaa	aaaggccgcg	ttgctggcgt	4260
ttttccatag	gctccgcccc	cctgacgagc	atcacaaaaa	tcgacgctca	agtcagaggt	4320
ggcgaacccc	gacaggacta	taaagatacc	aggcgtttcc	ccctggaagc	tccctcgtgc	4380
gctctcctgt	tccgaccctg	ccgcttaccg	gatacctgtc	cgcctttctc	ccttcgggaa	4440
gcgtggcgct	ttctcaatgc	tcacgctgta	ggtatctcag	ttcgggtgag	gtcgttcgct	4500
ccaagctggg	ctgtgtgcac	gaaccccccg	ttcagcccga	ccgctgcgcc	ttatccggta	4560
actatcgtct	tgagtccaac	ccggttaagac	acgacttata	gccactggca	gcagccactg	4620
gtaacaggat	tagcagagcg	aggtatgtag	gcggtgctac	agagttcttg	aagtgggtgc	4680
ctaactacgg	ctacactaga	aggacagtat	ttggtatctg	cgctctgctg	aagccagtta	4740
ccttcggaaa	aagagtgggt	agctcttgat	ccggcaaaaa	aaccaccgct	ggtagcgggt	4800
gtttttttgt	ttgcaagcag	cagattacgc	gcagaaaaaa	aggatctcaa	gaagatcctt	4860
tgatcttttc	tacggggtct	gacgctcagt	ggaacgaaaa	ctcacgttaa	gggatttttg	4920
tcatgacatt	aacctataaa	aataggcgta	tcacgaggcc	ctttcgtctc	gcgcgtttcg	4980
gtgatgacgg	tgaaaacctc	tgacacatgc	agctcccggg	gacggtcaca	gcttgtctgt	5040
aagcggatgc	cgggagcaga	caagcccgtc	agggcgcgct	agcgggtggt	ggcgggtgct	5100

ggggctggct	taactatgcg	gcacagagc	agattgtact	gagagtgcac	catatggaca	5160
tattgtcggt	agaacgcggc	tacaattaat	acataacctt	atgtatcata	cacatacgat	5220
ttaggtgaca	ctatagaacg	gcgcgcgctc	gacggatata	atgagccgta	aacaaagatg	5280
attaagtagt	aattaatacg	tactagtaaa	agtggcaaaa	gataacgaga	aagaaccaat	5340
ttctttgcat	tccgccttag	cggaaggcat	atataagctt	tgattatttt	atttagtgta	5400
atgatttcgt	acaaccaaag	catttattta	gtactctcac	acttgtgtcg	cggccggagc	5460
tggtcatctc	gctcatcgtc	gagtcggcgg	cgggagctgg	tcatctcgct	catcgtcgag	5520
tcggcggccg	ccgactcgac	gatgagcgag	atgaccagct	ccggccgccc	actcgacgat	5580
gagcgagatg	accagctccg	gccgcttggg	gggctatgga	agactttctt	agttagtgtg	5640
gtgaataagc	aatgttggga	gaatcgggac	tacttatagg	ataggaataa	aacagaaaag	5700
tattaagtgc	taatgaaata	tttagactga	taattaaaaa	cttcacgtat	gtccacttga	5760
tataaaaacg	tcagggaataa	aggaagtaca	gtagaattta	aaggtactct	ttttatatat	5820
accggtgttc	tctttttggc	tagctagtgt	cataaaaaat	aatctatatt	tttatcatta	5880
ttttaaatat	cttatgagat	ggtaaatatt	tatcataatt	ttttttacta	ttatttatta	5940
tttgtgtgtg	taatacatat	agaagttaat	tacaaatttt	atttactttt	tcattatttt	6000
gatatgattc	accattaatt	tagtggttatt	atttataata	gttcatttta	atctttttgt	6060
atatattatg	cgtgcagtac	ttttttccta	catataacta	ctattacatt	ttatttatat	6120
aatatTTTTT	ttaatgaatt	ttcgtgataa	tatgtaatat	tgttcattat	tatttcagat	6180
tttttaaaaa	tatttTgtgt	attatTTtatg	aaatatgtaa	tttttttagt	atttgatttt	6240
atgatgataa	agtgttctaa	attcaaaaaga	agggggaaaag	cgtaaacatt	aaaaaacgtc	6300
atcaaacaaa	aacaaaatct	tgTTaataaaa	gataaaactg	tttgTTTTga	tcactgttat	6360
ttcgtaatat	aaaaacatta	tttatattta	tattgttgac	aaccaaattt	gcctatcaaa	6420
tctaaccaat	ataatgcatg	cgtggcaggt	aatgtactac	catgaactta	agtcatgaca	6480
taataaaccg	tgaatctgac	caatgcatgt	acctanctaa	attgtatttg	tgacacgaag	6540
caaattgattc	aattcacaat	ggagatggga	aacaaataat	gaagaacca	gaactaagaa	6600
agctttttctg	aaaaataaaa	taaaggcaat	gtcaaaaagta	tactgcatca	tcagtccaga	6660
aagcacatga	tattttttta	tcagtatcaa	tgagctagt	tttattttac	aatatcgata	6720
tagctagttt	aaatatattg	cagctagatt	tataaatatt	tgtgttatta	tttatcattt	6780
gtgtaatcct	gttttttagta	ttttagttta	tatatgatga	taatgtattc	caaattttaaa	6840
agaagggaaa	taaattttaaa	caagaaaaaa	agtcatcaaa	caaaaaacaa	atgaaagggt	6900
ggaaagatgt	taccatgtaa	tgtgaatgtt	acagtatttc	ttttattata	gagttaacaa	6960
attaactaat	atgattttgt	taataatgat	aaaatatTTT	ttttattatt	atttcataat	7020
ataaaaaatag	tttacttaat	ataaaaaaaa	ttctatcggt	cacaacaaag	ttggccacct	7080
aattttaacca	tgcattgtacc	catggaccat	attaggtaac	catcaaacct	gatgaagaga	7140
taaagagatg	aagacttaag	tcataacaca	aaaccataaa	aaacaaaaat	acaatcaacc	7200
gtcaatctga	ccaatgcatg	aaaaagctgc	aatagttagt	ggcgacacaa	agcacatgat	7260
tttcttataa	cggagataaa	accaaaaaaa	tatttcatga	acaacctaga	acaaataaag	7320
cttttatata	ataaatatat	aaataaataa	aggctatgga	ataatatact	tcaatatatt	7380
tggaattaaat	aaattgttgg	cggggttgat	atattttatac	acacctaaag	tcacttcaat	7440
ctcattttca	cttaactttt	atTTTTTTTT	tctttttatt	tatcataaag	agaatattga	7500
taatatactt	tttaacatat	ttttatgaca	ttttttattg	gtgaaaactt	attaaaaatc	7560
ataaattttg	taagttagat	ttattttaag	agttcctctt	cttattttta	atTTTTTaat	7620
aaatttttta	ataactaaaa	tttTgtttaa	aaatgtttaa	aaatgtgtta	ttaacccttc	7680
tcttcgagga	tccaagcttg	g				7701

<210> 2

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Amplification primer chalcone reductase Not1 sense

<400> 2

gcggccgcat ggctgctgct attgaaatc

29

<210> 3

<211> 29

<212> DNA

<213> Artificial Sequence

<220>  
 <223> Amplification primer chalcone reductase Not1 antisense

<400> 3  
 gcggccgccc tgctcgcacc tttcctcag 29

<210> 4  
 <211> 1410  
 <212> DNA  
 <213> Glycine max

<400> 4  
 acaagaagga tgggtccaaaa gtatctaata ggccatctcg atctcatctg accaagcttc 60  
 ctgggttagtt cttttgaatt gaataatata aaaaaaagaa gatgatggat gtgggtagag 120  
 ctcagtataa cccacctacc tccaattgct gacttttcaa aggccaaaca tgaagaaatg 180  
 ttgcagtata aaaaggggtg cccttcagtt atgtccatca acaaatattg gaatactaca 240  
 ctatacttgt caaccctttg agagttagaa tggctgctgc tattgaaatc cccacaatag 300  
 tgtttccaaa ctctcttgcc caacagagga tgccagtggt tggaatggga tctgcccctg 360  
 acttcacatg caagaaagac acaaaggagg ctatcattga ggccgtgaaa cagggttaca 420  
 gacacttcga cactgctgct gcttatggct ctgaacaggc tctcggtgaa gctctcaagg 480  
 aagctatcca tcttggcctc gtctcccgcc aagacctctt tgctacttcc aagctttggg 540  
 tcaccgaaaa tcatectcat ctgtctcttc ctgctttgcg caaatcactt aaaactcttc 600  
 aactagagta cttggacctg tatctcatcc actggcccct gagttctcag ccagggaagt 660  
 tctcatttcc aattgaagta gaagatctct tgccttttga cgtgaagggt gtgtgggaat 720  
 ccatggaaga gtgccagaaa cttggcctca ccaaagccat tggagtcagc aacttctctg 780  
 tcaagaagct tcagaatctg ctctctgttg ctaccatccg tcccgtgggt gatcaagtgg 840  
 agatgaacct tgcattggca cagaagaagc taagagagtt ctgcaaagaa aatgggataa 900  
 tagtgactgc gttctctcca ctgaggaaa gtgcgagcag gggcccaa atagtgatgg 960  
 agaattgatgt gctgaaggag attgcagagg ctcatgggaa atccatagcc caggtagatc 1020  
 tgagatgggt gtacgaacaa ggtgtgacat ttgtgccaaa gagctacgat aaggagagga 1080  
 tgaaccagaa tctgcacatc ttgactggg cattgactga acaagatcat cacaaaataa 1140  
 gtcaaatcag ccagagccgt ttgatcagcg gaccaccaa accacaactc gctgatctct 1200  
 gggatgatca aatataaaact atttactact atgcagctcc cactctatct ttataatcca 1260  
 tctttttacc tcttgtttca ttttacgttt aaataattca tgccatgcca cttcttattt 1320  
 tagatttcac aatcaataaa ctaggcacgc gcggcacatg atatgaataa actatgttca 1380  
 attttttttt caaaaaaaaaa aaaaaaaaaa 1410

<210> 5  
 <211> 22  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Amplification primer Primer3

<400> 5  
 cacgggacgg atggtagcaa ca 22

<210> 6  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Amplification primer Primer4

<400> 6  
 ccgattctcc caacattgct tattc 25

<210> 7  
<211> 154  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Artificial sequence containing a NotI site flanked by two  
36-nucleotide repeats and having an EagI site at each end.

<400> 7  
cggcgggagc tggatcatctc gctcatcgtc gagtcggcgg ccggagctgg tcatctcgt 60  
catcgctcgag tcggcggccg ccgactcgac gatgagcgag atgaccagct ccggcggccg 120  
actcgacgat gagcgagatg accagctccg gccg 154

<210> 8  
<211> 10  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Translation of one 30 nucleotide repeat found in pKS151

<400> 8  
Glu Leu Val Ile Ser Leu Ile Val Glu Ser  
1 5 10